IN THE CLAIMS:

1. (Currently amended) An actuator comprising:

a core;

a coil attached to the core and arranged and constructed to produce a magnetic field, wherein the core provides a path of the magnetic field;

a rotor rotatably mounted within the core, so that the rotor rotates in response to the magnetic field produced by the coil; and

an IC attached to the core and electrically connected to the coil, wherein the distance between the IC and the coil is determined based on a permissible temperature of the IC, so that the IC is not heated to substantially exceed the permissible temperature;

wherein the IC is positioned adjacent to a part of the core that is adapted to contact a heat dissipation member; and

wherein the heat dissipation member is a part of an object that is driven by the actuator.

2. (Original) An actuator as in claim 1, further including a connector connected to the IC, so that a power source voltage and a control signal are supplied to the IC via the connector, wherein the IC supplies an excitation current to the coil based upon the control signal.

3. (Original) An actuator as in claim 1, wherein the coil is positioned on one side of the core.

4. (Original) An actuator as in claim 3, wherein the IC is positioned on the side opposite to the coil.

5. (Canceled)

6. (Original) An actuator as in claim 1, wherein the IC is positioned such that a distance between a center of the IC and a part of the core that is adapted to contact a heat dissipation member is smaller than a distance between the center of the IC and a central axis of the coil.

7. (Original) An actuator as in claim 1, wherein a molding material is molded integrally with the actuator, so that the IC is fixed in position relative to the core by the molding material.

8. (Original) An actuator as in claim 7, wherein the molding material substantially encloses the IC.

9. (Original) An actuator as in claim 7, wherein the molding material is made of heat-resistant resin.

10. (Canceled)

11. (Currently amended) An actuator as in claim 1 [[10]], wherein the object driven by the actuator is a throttle device that includes a throttle body as the heat dissipation member.

12. (Original) An actuator as in claim 11, wherein the throttle body is made of material that has high heat conductivity.

13. (Currently amended) An actuator comprising:

a core;

a coil attached to the core and arranged and constructed to produce a magnetic field, wherein the core provides a path of the magnetic field;

a rotor rotatably mounted within the core, so that the rotor rotates in response to the magnetic field produced by the coil; and

an IC attached to the core and electrically connected to the coil, wherein the distance between the IC and the coil is determined based on a permissible temperature of the IC, so that the IC is not heated to substantially exceed the permissible temperature;

wherein the IC is positioned adjacent to a part of the core that is adapted to contact a heat dissipation member; and [[as in claim 5, further including]]

a spacer disposed between the core and an object driven by the actuator, so that the part of the core contacts the heat dissipation member via the spacer.

14. (Original) An actuator as in claim 13, wherein the spacer is made of material that has high heat conductivity.

15. (Currently amended) An actuator comprising:

a core;

a coil attached to the core and arranged and constructed to produce a magnetic field, wherein the core provides a path of the magnetic field;

a rotor rotatably mounted within the core, so that the rotor rotates in response to the magnetic field produced by the coil;

an IC attached to the core and electrically connected to the coil, wherein the distance between the IC and the coil is determined based on a permissible temperature of the IC, so that the IC is not heated to substantially exceed the permissible temperature;

wherein the IC is positioned such that a distance between a center of the IC and a part of the core that is adapted to contact a heat dissipation member is smaller than a distance between the center of the IC and a central axis of the coil; and [[as in claim 6,]]

wherein the heat dissipation member is a part of an object that is driven by the actuator.

16. (Original) An actuator as in claim 15, wherein the object driven by the actuator is a throttle device that includes a throttle body as the heat dissipation member.

17. (Original) An actuator as in claim 16, wherein the throttle body is made of material that has high heat conductivity.

18. (Currently amended) An actuator comprising:

a core;

a coil attached to the core and arranged and constructed to produce a magnetic field, wherein the core provides a path of the magnetic field;

a rotor rotatably mounted within the core, so that the rotor rotates in response to the magnetic field produced by the coil;

an IC attached to the core and electrically connected to the coil, wherein the distance between the IC and the coil is determined based on a permissible temperature of the IC, so that the IC is not heated to substantially exceed the permissible temperature;

wherein the IC is positioned such that a distance between a center of the IC and a part of the core that is adapted to contact a heat dissipation member is smaller than a distance between the center of the IC and a central axis of the coil; and [[as in claim 6, further including]]

a spacer disposed between the core and an object driven by the actuator, so that the part of the core contacts the heat dissipation member via the spacer.

19. (Original) An actuator as in claim 18, wherein the spacer is made of material that has high heat conductivity.

20. (Canceled)

21. (Canceled)

22. (Canceled)